

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN DIEGO REGION

CLEANUP AND ABATEMENT ORDER NO. 88-89  
SINGER COMPANY, ELECTRONIC SYSTEMS DIVISION  
SAN MARCOS  
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board) finds that:

1. The Singer Company, Electronics Systems Division is located at 1370 San Marcos Boulevard in San Marcos. An unnamed tributary to San Marcos Creek lies along the eastern edge of the property. The site lies in the Richland Hydrographic Subarea of the San Marcos Hydrographic Area. The Singer Facility manufactures navigational guidance system, involving the production of printed circuit boards and the associated processes of plating, soldering, degreasing, painting, etc.
2. Prior to 1984, according to the Singer Company, rinse waters from the plating shop would flow to a subsurface concrete sump and then to a clarifier. Sludge from the clarifier was sent to a subsurface concrete storage tank. Spent plating, acid, and cleaning solutions were pumped from the plating shop to a second subsurface concrete tank. The two tanks were removed in 1984 and replaced with a liquid retention structure. According to the Singer Company, among the substances which are known to have been used and stored at the site include: 1, 1, 1, - tri-chloroethane, isopropyl alcohol, hydrofluoric acid, fluoboric acids, inks, paints, primers, and thinners.
3. On July 15, 1982, the Regional Board office was notified by Mr. Gerald Hardace of the Singer Company of a leak in one of the underground concrete storage tanks at the facility. The tanks was used to store spent plating, aid, nd cleaning solution. After inserting a vinyl liner, the tank was returned to service<sup>4</sup>. According to the sampling results of a investigation conducted in May, 1982, by IT Corporation for the Singer Company, the soli and ground water near the tank leak contained concentrations of copper and chromium as high a the following:

<u>Constituents</u>	<u>Soil</u>	<u>Ground Water</u>
Copper	392 ppm	4920 ppm
Chromium, total	179 ppm	70 ppm

4. On May 27, 1988, Mr. Varga of Singer Company told Regional Board staff that a ground water extraction program was implemented by the Singer Company for approximately one and a half years in the 1982-1983 time frame. However, the Regional Board has no documentation describing the specific cleanup actions taken by the Singer Company nor data to evaluate their performance and efficacy.
5. A September 29, 1983 report prepared by IT Envirosience contains the results of the soil and ground water sampling conducted at the Singer Kearfott facility in September 1983. A hand auger was used to collect soil samples from six shallow borings in the vicinity of the clarifier and the sump. The soil samples were analyzed for copper and the results follow:

<u>Sample depth</u>	<u>Copper Concentration</u>
34-36 inches	335 ppm
22-24 inches	2861 ppm
34-36 inches	1.47 ppm
34-36 inches	142 ppm
16-18 inches	93 ppm
16-18 inches	3.53 ppm

6. Ground water samples were collected from six pre-existing monitoring wells at the Singer facility by IT Corporation in September 1983. Well Nos. W-1, W-4, W-15 and W-18 are located within about 30 feet of the clarifier. Well Nos. W-1 and W-4 are located within 10 feet of the two underground waste sludge and acid tanks. Well W-9 is located approximately 180 feet northeast of these tanks. Results of analyses on these ground water samples are as follows:

<u>Well No.</u>	<u>W-1</u>	<u>W-4</u>	<u>W-9</u>	<u>W-15</u>	<u>W-18</u>	<u>W-19</u>
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Constituents

1,1,1- Trichloro- ethane	8790 ug/l	1100 ug/l	5500 ug/l	27000 ug/l	940 ug/l	<1 ug/l
1,1- Dichloro- ethylene	5640 ug/l	1600 ug/l	2800 ug/l	11000 ug/l	1300 ug/l	<1 ug/l
Dichloro- methane	3860 ug/l	7 ug/l	7 ug/l	620 ug/l	12 ug/l	<1 ug/l

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Trichloro- ethylene	176 ug/l	33 ug/l	28 ug/l	2200 ug/l	56 ug/l	<1 ug/l
1,1- Dichloro- ethane	140 ug/l	35 ug/l	720 ug/l	250 ug/l	330 ug/l	<1 ug/l
Tetrachlor- ethylene	1.46 ug/l	1 ug/l	8 ug/l	10 ug/l	2 ug/l	<1 ug/l

The September 29, 1988 report does not describe or document any cleanup actions that may have been taken, if any.

7. In August 1984, two concrete underground storage tanks were removed at the Singer Company. One of these tanks was the tank described in Finding No. 2. An inspector from the County of San Diego Department of Health Services noted evidence that at least one of the tanks had leaked. Copper-blue water was observed in the tank excavation pit. The tanks contained waste acidic plating solution and sludge. The tank excavation pit remained open for approximately one year.

8. According to information submitted to this office by the Singer Company on June 23, 1988, 170 cubic yards of contaminated soil were removed from the tank pit in August, 1985, and disposed of at a Class I landfill. Sixteen soil samples were collected from the pit after excavation. The samples were analyzed for copper and total chromium. A simple statistical analysis on the data give the following before and after excavation mean concentrations and standard deviations:

	<u>Copper</u>		<u>Chromium</u>	
	Before Excavation	After Excavation	Before Excavation	After Excavation
Mean Concentration	109 mg/kg	178.7 mg/kg	40.9 mg/kg	60.1 mg/kg
Standard Deviation	142 mg/kg	145.9 mg/kg	17.9 mg/kg	18.2 mg/kg

9. According to information contained in a report submitted by Singer and dated December 22, 1987, four soil borings were drilled in August 1985 as part of an investigation unrelated to the storage tank excavation described in finding No. 7 above. The borings were located approximately 40 to 160 feet away from the former underground storage tanks. The soil samples were analyzed for copper and total chromium with the following results:

<u>Boring</u>	<u>Depth</u>	<u>Copper Concentration</u>	<u>Total Chromium</u>
B1	7-7.5 ft	2 mg/kg	2 mg/kg
B1	12-12.5 ft	Tr<1 mg/kg	ND< 1mg/kg
B1	17-17.5 ft	2 mg/kg	7 mg/kg
B2	7-7.5 ft	2 mg/kg	3 mg/kg
B2	12-12.5 ft	3 mg/kg	2 mg/kg
B3	7-7.5 ft	Tr<1 mg/kg	2 mg/kg
B3	12-12.5 ft	Tr<1 mg/kg	Tr<1 mg/kg
B3	17-17.5 ft	2 mg/kg	2 mg/kg
B4	7-7.5 ft	Tr<1 mg/kg	Tr<1 mg/kg
B4	12-12.5 ft	10 mg/kg	5 mg/kg
B4	15-15.5 ft	2 mg/kg	3 mg/kg
Mean Concentration		2.3 mg/kg	2.45 mg/kg
Standard Deviation		2.7 mg/kg	2.05 mg/kg

10. Assuming that the copper and chromium concentrations found in Finding No. 9 above approximately represent the naturally occurring background concentrations at the site, then the soil excavation described in Finding No. 8 did not succeed in removing all of the contamination resulting from the former leaking underground storage tanks. In fact, the copper and chromium concentrations in the soil were higher after soil excavation than before, as the data in Finding No. 8 show. Therefore, the Regional board finds and concludes that the subsurface metal plating contamination resulting from the former leaky waste acid and solvent underground storage tanks has not been adequately characterized and mitigated.
11. According to a report dated July 31, 1985, and prepared by IT Corporation, the ground water at the Singer Kearfott facility flows in an easterly direction based on ground water level data collected in February, 1984. The report also contains the results of ground water sampling from February 1985. The results of laboratory analyses on the ground water follow:

Well No.	<u>Concentration</u>		
	<u>Chromium +3</u>	<u>Chromium +6</u>	<u>Copper</u>
W-1	0.13 mg/l	<0.05 mg/l	144 mg/l
W-2	<0.05 mg/l	<0.05 mg/l	69 mg/l
W-4	<0.05 mg/l	<0.05 mg/l	0.03 mg/l
W-11	<0.05 mg/l	<0.05 mg/l	0.19 mg/l
W-12	<0.05 mg/l	<0.05 mg/l	0.01 mg/l
W-13	0.11 mg/l	<0.05 mg/l	0.02 mg/l
W-14	0.05 mg/l	<0.05 mg/l	0.02 mg/l

W-15	<0.05 mg/l	<0.05 mg/l	0.03 mg/l
W-16	<0.05 mg/l	0.37 mg/l	0.04 mg/l
W-18	0.05 mg/l	<0.05 mg/l	0.06 mg/l
W-19	0.08 mg/l	<0.05 mg/l	0.04 mg/l
W-22	<0.05 mg/l	0.30 mg/l	0.04 mg/l
W-25	<0.05 mg/l	<0.05 mg/l	0.12 mg/l

The report also notes that a ground water sample collected from well No. W-1 in May 1983 was analyzed and found to contain 216 ppm copper. Not all of the wells still exist. These data reveal the presence of very high levels of copper in the ground water in the vicinity of monitoring well Nos. W-1 and W-2. The report does not contain any information regarding cleanup actions undertaken by the Singer Company if any.

12. In January, 1987, one 1000-gallon underground storage tank was removed from the Singer Company facility. The tank may have contained waste oil, solvents, soldering fluids, and fusing fluids. A soil sample collected from a depth of 5 feet 9 inches was analyzed and found to contain 920 ug/kg 1,1,1-trichloroethane and 529 mg/kg grease and oil. An inspector from the County of San Diego Department of Health Services observed holes in the tank. The Regional Board office has no information documenting and describing any cleanup actions that may have been undertaken by the Singer Company.
13. The Singer Company retained Woodward-Clyde Consultant to perform a subsurface investigation to determine the extent of the contamination resulting from the excavated leaky underground storage tank system described in Finding No. 12 above. The results of the investigation are contained in a report prepared by Woodward-Clyde Consultants dated December 23, 1987. The report contains the following information:
  - a. Three borings were drilled and converted to monitoring wells, designated MW-4, MW-5, MW-6. Only MW-5 is located less than 200 feet from the former waste oil tank pit. Soil samples were collected from each boring and analyzed for purgeable halocarbons and three metals, with the following results:

Soil Sample Location	Volatile Organic Compounds	Chromium	Copper	Lead
MW-4, 10-10.5 feet	ND	3.8 mg/kg	<1 mg/kg	1.5 mg/kg
MW-4, 20-21.5 feet	ND	3.5 mg/kg	1.4 mg/kg	2.1 mg/kg
MW-5, 7-7.5 feet	ND	4.0 mg/kg	<1 mg/kg	2.3 mg/kg
MW-6, 5.5-6 feet	0.18 mg/kg CH <sub>2</sub> Cl <sub>2</sub>	6.9 mg/kg	4.4 mg/kg	6.7 mg/kg
MW-6, 22-22.5 feet	ND	5.5 mg/kg	9.6 mg/kg	4.4 mg/kg
Tank backfill, 5.5-6 feet	--	4.8 mg/kg	2.8 mg/kg	5.3 mg/kg

- b. Ground water samples collected from the three monitoring wells described in Finding No. 13 (b) above analyzed and found to contain the following:

Constituents

Concentration

	<u>MW-4</u>	<u>MW-5</u>	<u>MW-6</u>
Chromium (hexavalent)	<0.05 mg/l	<0.05 mg/l	<0.05 mg/l
Copper	<0.02 mg/l	<0.02 mg/l	<0.02 mg/l
Lead	<0.002 mg/l	<0.002 mg/l	<0.002 mg/l
1,1 Dichloroethylene	3.9 mg/l	2.8 mg/l	<0.05 mg/l
1,1 Dichloroethane	0.05 mg/l	0.05 mg/l	<0.05 mg/l
Trans-1, 2-Dichloroethylene	0.05 mg/l	0.15 mg/l	<0.05 mg/l
1,1,1-Trichloroethane	2.7 mg/l	0.2 mg/l	<0.05 mg/l
Trichloroethylene	0.93 mg/l	0.63 mg/l	<0.05 mg/l

- c. The ground water flow direction is toward the southeast. This is based on ground water level data collected in September 1987.
14. The Comprehensive Water Quality Control Plan Report, San Diego Basin (9) Basin Plan was adopted by this Regional Board on March 17, 1975; approved by the State Water Resources Control Board on March 20, 1975; and updated by the Regional Board on February 27, 1978; March 23, 1981; January 24 and October 3, 1983; and August 27, 1984. The 1978, 1981, 1983 and 1984 updates were subsequently approved by the State Board.
15. The Basin Plan has established no potential or existing beneficial uses for the ground water in the portion of the Richland Hydrographic Subunit on the south side of Highway 78 where the Singer facility is located. On the opposite (north) side of Highway 78 the Basin Plan has established the following beneficial uses for the ground water:
- municipal
  - industrial
  - agricultural

16. The Basin Plan has established the following beneficial uses for the surface waters of the San Marcos Hydrographic Area:
  - a. agricultural supply
  - b. water contact recreation
  - c. non-contact water recreation
  - d. warm fresh-water habitat
  - e. wildlife habitat
  - f. preservation of rare and endangered species
17. Although the Basin Plan does not recognize any existing or potential beneficial uses of the ground water underlying the Singer facility the ground water quality is subject to the provisions of the State Water Resources Control Board's Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California. In Resolution 78-34 the Regional Board stated its intent to protect the water quality of ground water basins which have no beneficial uses established in the Basin Plan in a manner consistent with the provisions of Resolution No. 68-16. Under the terms and conditions of Resolution No. 68-16, the existing (pre-discharge) ground water quality of the Richland Hydrographic Subunit must be maintained unless it is demonstrated that a decrease in water quality (a) will be consistent with maximum benefit to the people of the state, (b) will not unreasonably affect beneficial uses, and (c) will not result in water quality less than prescribed in the Basin Plan or other adopted policies.
18. The Basin Plan contains the following prohibition:

"Dumping or deposition of oil, garbage, trash or other solid municipal, industrial or agricultural waste into natural or excavated sites below historical water levels or deposition of soluble industrial wastes at any site is prohibited, unless such site has been specifically approved by the Regional Board for that purpose."
19. Section 13050(1) of the California Water code defines "pollution" as follows:

"Pollution means an alteration of the quality of the waters of the State by waste to a degree which unreasonably affects (a) such waters for beneficial uses, or (b) facilities which serve such beneficial uses."
20. The California State Department of Health Services (DOHS) has established the following "Action Levels" for pollutants in drinking water:

<u>Constituent</u>	<u>Action Levels</u>
1,1 - Dichloroethane	20 ug/l
1,1 - Dichloroethylene	6 ug/l
1,1,1 - Trichloroethane	200 ug/l
Trichloroethylene	5 ug/l
Tetrachloroethylene	4 ug/l
Toluene	100 ug/l

21. The United States Environmental Protection Agency has established:
- The secondary Maximum Contaminant Level (MCL) for copper in drinking water to be 1.0 mg/l.
  - The primary Maximum Contaminant Level for hexavalent chromium in drinking water to be 50 ug/l.
  - The four-day average National Ambient Water Quality Criteria to protect freshwater aquatic life = (1) 98 ug/l of trivalent chromium (2) 11 ug/l of hexavalent chromium; (3) 5.4 ug/l of copper.
22. Title 40, Code of Federal Regulations, Part 144 (40 CFR 144) contains the following United States Environmental Protection Agency definition of an "underground source of drinking water:
- "Underground sources of drinking water (USDA) means an aquifer or its portion:
1. Which supplies any public water system; or
  2. Which contains a sufficient quantity of ground water to supply a public water system; and
    - i. Currently supplies drinking water for human consumption; or
    - ii. Contains fewer than 10,000 mg/l total dissolved solids; and
  - (b) Which is not an exempted aquifer."
23. Ground water samples collected from on-site monitoring wells in December, 1982, by the Singer Company were analyzed and found to contain from 1600 to 6700 mg/l total



dissolved solids. Therefore, based on the available information, the ground water underlying the Singer Company facility falls under EPA's definition of an underground source of drinking water listed in Finding No. 22 above.

24. The presence of chlorinated hydrocarbons in the ground water underlying the Singer Company facility constitutes a "pollution" of the state's water as defined in Finding No. 19 in accordance with the following rationale:
  - a. Chlorinated hydrocarbons have been discharged to the ground by leaks from the underground tank system, piping system, sump and/or clarifier.
  - b. The discharged chlorinated hydrocarbons have migrated through the soil column to the underlying ground water.
  - c. The resulting concentration of chlorinated hydrocarbons in the underlying ground water, listed in Finding Nos. 6 and 13, exceed DOHS drinking water action levels listed in Finding No. 20 and therefore, impair the ground water for possible future municipal beneficial use.
25. The discharge of chlorinated hydrocarbons to the ground constitutes a violation of the Basin Plan prohibition specified in Finding No. 18 because the site was not approved by the Regional Board for the deposition of soluble industrial wastes.
26. The discharge of metal plating wastes from the underground storage tanks resulted in elevated levels of metals in the soil and dissolved in the ground water as described in Finding Nos. 3, 5, and 8. Therefore, the discharge of metal plating wastes to the ground constitutes a violation of the Basin Plan prohibition listed in Finding No. 18 because the site was not approved by the Regional Board for the deposition of soluble industrial wastes.
27. This enforcement action is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 2100 et. seq.) in accordance with Section 15321, Chapter 3, Title 14, California Administrative Code.

It is hereby ordered, that pursuant to Section 13304 of the California Water Code, the Singer Company (hereinafter the discharger) shall comply with the following directives:

1. The discharger shall submit a report to this office no later than January 30 1989, fully defining the vertical and horizontal extent of chlorinated hydrocarbon contamination

ground water. The report shall address copper, chromium, and any other heavy metal contamination that may have originated from the former underground storage tanks, sump, clarifier and associated piping. The report shall document any cleanup actions that may have been taken in the past by the discharger to remediate the heavy metal contamination discussed in Finding Nos. 3, 5, 8, and 11. The report shall include the following information:

- a. A site map showing the locations of all boring, monitoring wells, clarifier, sump, former underground storage tanks, any other sources of heavy metal contamination.
  - b. A site map showing the ground water velocity field.
  - c. A site map showing the boundaries of the heavy metal ground water contamination plumes.
  - d. Cross-sectional maps of the sites showing the vertical and horizontal extent of the heavy metal soil contamination zones.
  - e. Laboratory results of heavy metal analyses on the soil and ground water samples. The samples should be analyzed for any other waste constituents that may have been discharged along with the metal contaminants.
3. The discharger shall take:
- a. Immediate effective remedial action to immobilize the ground water contamination plume.
  - b. Effective remedial action to protect the beneficial uses of the ground and surface waters of the Richland Hydrographic Subarea.
  - c. Effective remedial action to remove any on site source of solvent and metal plating waste contamination to the ground water, including soil contaminated with leachable waste constituents.
4. The discharger shall submit a report to this office no later than January 30, 1989, describing the remedial actions taken to comply with Directive No. 3 above.
5. The discharger shall submit monitoring reports to this office on a quarterly basis until, in the opinion of the Regional Board Executive Officer, the site has been adequately remediated. The monitoring reports shall

describe the progress made in the cleanup operations and shall demonstrate that the affected ground water contamination zone is not expanding and is immobilized. The quarterly monitoring reports shall include, but not be limited to, the following information:

- a. Quantity of ground water extracted during the quarter and the total to date, and its ultimate disposal point.
- b. The water levels in all of the ground water monitoring wells.
- c. Any information necessary to demonstrate that the metal plating waste and solvent contamination resulting from the unauthorized discharge at the Singer facility is fully contained and immobilized.
- d. A map of the site with the hydrologic contours showing the ground water flow pattern and the locations of all the wells.
- e. A map of the site showing the boundary of the effected ground water contamination zone.
- f. Ground Water samples shall be collected from all of the monitoring wells and analyzed for the waste constituents and their degradation products. At a minimum, the analyses shall include the following constituents:
  1. 1,1,1 - Trichloroethane
  2. 1,1 - Dichloroethylene
  3. Dichloromethane
  4. Trichloroethylene
  5. 1,1 - Dichloroethane
  6. Tetrachloroethylene
  7. Copper
  8. Hexavalent Chromium
  9. Total Chromium
  10. pH
  11. Fluoride
  12. Boron
  13. Toluene
- g. A description of the remedial actions employed by the discharger during the quarter.

The quarterly monitoring reports shall be submitted to this office in accordance with the following schedule:

Reporting Period

Due Date

January, February, March  
April, May, June  
July, August, September  
October, November, December

April 30  
July 31  
October 31  
January 31

6. Upon written notification by the Executive Officer, the ground water sampling and analysis requirements specified in Directive (f) above may be modified.
7. No later than July 31, 1989 the discharger shall submit a report to this office identifying and developing a range of remedial action alternatives for the final phase of the cleanup program. The report shall examine and determine the cost of cleanup strategies capable of achieving each of the following potential final cleanup levels in the affected ground water contamination zone:
  - a. Treatment and/or removal of the contaminated ground water to attain the naturally occurring, pre-discharge background concentrations for each of the waste constituents contained in the waste discharges, including the following constituents:
    1. 1,1 - Dichloroethane
    2. 1,1 - dichloroethylene
    3. 1,1,1, - Trichloroethane
    4. Trichloroethylene
    5. Tetrachloroethlylene
    6. Toluene
    7. Hexavalent Chromium
    8. Total Chromium
    9. Copper
    10. pH
  - b. A remedial action alternative proposing the attainment of contaminant concentrations less stringent than those specified in (a). It will be necessary to establish, that the contaminant concentrations being proposed by the discharger under this alternative would comply with the following criteria in accordance with Resolution No. 68-16:
    1. The proposed contaminant concentrations to be attained in the affected ground water pollution zone would not unreasonably affect the beneficial uses of the ground water listed in Finding No. 15 or of any hydraulically connected surface waters.

2. The proposed contaminant concentrations to be attained in the affected ground water pollution zone will be consistent with the maximum benefit to the people of the State.
  3. The proposed contaminant concentrations to be attained in the affected ground water pollution zone will not result in water quality less than prescribed in the Basin Plan or other adopted policies.
- c. Treatment and/or removal of the polluted ground water to attain the following DOHS Action Levels and the U.S. EPA recommended maximum contaminant levels and fresh water aquatic toxicity levels in the underlying ground water aquifer:

<u>Constituent</u>	<u>Maximum Concentration</u>
1,1 - Dichloroethane	20 ug/l
1,1 - Dichloroethylene	6 ug/l
1,1,1 - Trichloroethane	200 ug/l
Trichloroethylene	5 ug/l
Tetrachloroethylene	4 ug//l
Toluene	100 ug/l
Trivalent Chromium	98 ug/l
Hexavalent Chromium	50 ug/l
Copper	1 ug//l

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The report should include a table summarizing the cleanup level versus cost information.

8. The cleanup alternatives required under Directive 7 of this Order will be evaluated in detail by Regional Board staff. This evaluation will include technical considerations, estimated costs, and anticipated water quality impacts associated with each alternative. Based on this evaluation a specific set of final cleanup levels for the ground water will be selected by the Regional Board from within the range of potential cleanup concentrations specified in Directive No. 7 above. Upon notification by the Executive Officer, the discharger shall implement a cleanup strategy capable of achieving the final cleanup levels selected by the Regional Board. If the discharger wishes to implement cleanup alternative (a), the Singer Company will not be required to consider and cost strategies corresponding to the less stringent cleanup levels in alternatives (b) and (c).

9. The discharger shall remove and/or treat all contaminated soil containing waste constituents in concentrations exceeding the following levels:

<u>Constituents</u>	<u>Maximum Concentrations</u>
1,1 - Dichloroethane	20.0 mg/kg
1,1,- Dichloroethylene	6.0 mg/kg
1,1,1 - Trichloroethane	200.0 mg/kg
Trichloroethylene	5.0 mg/kg
Tetrachloroethylene	4.0 mg/kg
Toluene	100.0 mg/kg
Trivalent Chromium	98.0 mg/kg
Hexavalent Chromium	5.0 mg/kg
Copper	100.0 mg/kg

If the naturally occurring background levels of any of these constituents is higher than the above concentrations, then the naturally occurring background concentration shall serve as a final cleanup level that must be achieved by the discharger at the site.

10. The discharger shall dispose of all contaminated ground water and/or soil in accordance with all applicable local, state and federal regulations.
11. No later than January 30, 1991, the Singer Company must demonstrate to the Regional Board Executive Officer's satisfaction that the final cleanup levels, as determined by the Regional Board under Directives Nos. 7, 8 and 9, have been achieved throughout the soil and ground water contamination zones, the discharger shall continue to monitor the ground water and submit quarterly monitoring reports in accordance with Directives 5 of this Order for a period of at least one year. If at any time during this post-cleanup monitoring the data indicate that the final cleanup levels have not been maintained, the discharger shall immediately resume appropriate remedial cleanup actions. If, on the other hand, the final cleanup levels have not been exceeded for the year of monitoring, then no further cleanup or monitoring shall be required.

Ordered by:

*Ladin H. Delaney*  
LADIN H. DELANEY  
Executive Officer  
December 20, 1988